



CHES-IR : Building an Immunization Registry as an NBS PAM

Presented by

SC Dept. of Health and Environmental Control

CGH Technologies, Inc

Project History – The Problem

- Existing system built on old technology (Clipper)
- Database could not support the volume of data (xBASE)
- System was unreliable
- IS support staff had to turn off provider access to 'save' the system

Project History – The Decision

- Build a new system from scratch?
- Build a new system as module of DHEC Patient Management System?
- Buy a commercial system?
- Build as an NBS PAM?

The Decision?: **NBS PAM**

Project History – The Decision cont.

WHY Build as a NBS Program Area Module??

- **Infrastructure already in place**
- **Demographic module already in place**
- **Could already store Immunization data**
- **Integration with Disease Control Data**

Our Approach

- **Re-use NBS components where possible**
- **Minimize changes necessary to out-of-the-box NBS code**
- **No modifications to database**
- **Integrate into NBS security architecture to prevent/allow access**

Phased Development

WHY Develop in Phases?

- **Time is of the essence. We need to get a functioning registry up as soon as possible.**
- **Phase 1 will get a basic registry up and running.**
- **Phases 2 & 3 will add additional features.**

Phased Development: Phase 1

- **Cover most critical NIP Registry Minimum Standards (8 of 12)**
 1. Electronically store data on all NVAC-approved core data elements
 2. Enable access to & retrieval of immunization info. in the registry at the time of encounter
 3. Receive & process immunization info. within 1 month of vaccine administration
 4. Protect the confidentiality of health care information
 5. Ensure security of health care information
 6. Automatically determine the routine childhood immunization(s) needed, in compliance with current ACIP recommendations.
 7. Produce official immunization records
 8. Promote accuracy and completeness of registry data

Phased Development: Phase 2+

- **Cover remainder of NIP Registry
Minimum Standards**

1. Establish a registry record within 6 weeks of birth for each newborn child born in the catchment area
2. Exchange immunization records using HL7 standards
3. Automatically identify individuals due/late for immunization(s) to enable the production of reminder/recall notifications
4. Automatically produce immunization coverage reports by providers, age groups, and geographic areas

- **Other Features to Add**

1. Ability to use Bar-code scanners
2. Interface for bulk-loading data from mass-immunization events (FLU)
3. Inventory Management
4. Medicaid (MMIS) integration for VAFAC eligibility.

Where are we now?

- In testing and final development of Phase I
- In the process of implementing a web-portal solution for providing two-factor authentication and user-management.
- Once security architecture in place, will begin deployment with early-adopting practices
- Will deploy in Fall 2004

Search Results Screen



Search Results

User: Ken C Stuber

[New Search](#) | [Refine Search](#)



Add

Your Search Criteria: Last Name Contains 'clark', First Name Contains 'mary' resulted in 1 possible matches.

	Full Name	Age/DOB	Sex	Address	Telephone	ID
View	<i>Legal</i>	1 Years	Female	<i>Home - House</i>	<i>Home -</i>	<i>Social</i>
View File	<input checked="" type="checkbox"/> Clark, Mary	12/15/2002		n/a	<i>Phone</i>	<i>Security</i>
Immunization				n/a	000-000-0000	020-55-3254
				n/a, South Carolina 29730	<i>Work Place - Phone</i>	
					000-000-0000	



Add

Home

Data Entry

Merge Patients

Summary Data

Investigations

Reports

System Admin

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Patient Info Screen



Immunization Registry

User: Kevin Baum

Patient ID: PSN11016000SC01

[Patient Search](#) | [CGH Technologies, Inc.](#)



Manage Patient



Manage Vaccines

Name: Mary Clark DOB: 12/15/2002 Current Sex: Female

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Patient Information

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The name displayed here is a legal name and the address is a home address.
To view additional information, click the Manage Patient button above.

Last Name: Clark First Name: Mary Middle Name: Higgins
 DOB: 12/15/2002 Current Age: 1 year 4 months Age Reported Date: -na-na-
 Current Sex: Female SSN: 020-55-3254
 Deceased? N
 Address: n/a
 City: n/a State: South Carolina
 ZIP: 11060001 County: -na-
 Phone: 000-000-0000 Ext.: -na-
 Ethnicity: Hispanic or Latino
 Race: Unknown VAFAC Eligible: ~Collect~

Schedule

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Key: Late Due Complete Future

Age Vaccine	Birth	1 mos	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs

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Patient Info Screen cont.

Current Sex: Female SSN: 020 33 3234
Deceased? N
Address: n/a
City: n/a **State:** South Carolina
ZIP: 11060001 **County:** -na-
Phone: 000-000-0000 **Ext.:** -na-
Ethnicity: Hispanic or Latino
Race: Unknown

VAFAC Eligible: ~Collect~

Schedule

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Key: Late Due Complete Future Ineligible

Age Vaccine	Birth	1 mos	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B	HepB	HepB				HepB						
Diphtheria, Tetanus Pertusis			DTaP	DTaP	DTaP		DTaP			DTaP		
<i>Haemophilus Influenzae</i> Type B				Hib	Hib	Hib		Hib				
Inactivated Polio			IPV	IPV	IPV					IPV		
Measles, Mumps, Rubella						MMR				MMR		
Varicella						Var						
Pneumococcal			PCV	PCV	PCV	PCV						

Dose Information Click on doses above for specific information

Patient Info

Forecasting

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Manage Forms



Manage Patient



Manage Vaccines

Patient Info Screen (dose details)

City: n/a State: South Carolina
 ZIP: 11060001 County: -na-
 Phone: 000-000-0000 Ext.: -na-
 Ethnicity: Hispanic or Latino
 Race: Unknown VAFAC Eligible: ~Collect~

Schedule

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Key: Late Due Complete Future Ineligible

Age Vaccine	Birth	1 mos	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B	HepB	HepB				HepB						
Diphtheria, Tetanus Pertusis			DTaP	DTaP	DTaP		DTaP			DTaP		
Haemophilus Influenzae Type B				Hib	Hib	Hib		Hib				
Inactivated Polio			IPV	IPV	IPV					IPV		
Measles, Mumps, Rubella						MMR				MMR		
Varicella						Var						
Pneumococcal			PCV	PCV	PCV	PCV						

Dose Information Click on doses above for specific information

Vaccine:

Date Given:
Age at Vaccination:

Manufacturer:
Organization ID:

Lot Number:
Expiration Date:

Given By:
Provider ID:

Organization Name:
Organization ID:

Patient Info

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Manage Patient



Manage Vaccines

Patient Info Screen (late dose)

Current Sex: Female **SSN:** 020-55-3254
Deceased? N
Address: n/a
City: n/a **State:** South Carolina
ZIP: 11060001 **County:** -na-
Phone: 000-000-0000 **Ext.:** -na-
Ethnicity: Hispanic or Latino
Race: Unknown

VAFAC Eligible: ~Collect~

Schedule

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Key: Late Due Complete Future Ineligible

Age Vaccine	Birth	1 mos	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B	HepB	HepB				HepB						
Diphtheria, Tetanus Pertusis			DTaP	DTaP	DTaP		DTaP			DTaP		
<i>Haemophilus Influenzae</i> Type B				Hib	Hib	Hib		Hib				
Inactivated Polio			IPV	IPV	IPV					IPV		
Measles, Mumps, Rubella						MMR				MMR		
Varicella						Var						
Pneumococcal			PCV	PCV	PCV	PCV						

Dose Information

Click on doses above for specific information

This dose has not been administered

Series: **Status:**
Minimum Date: **Maximum Date:**

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Manage Patient



Manage Vaccines

Forecasting Screen



Immunization Registry

User: Kevin Baun

Patient ID:PSN11016000SC01

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Manage
Patient



Manage
Vaccines

Name: Mary Clark DOB: 12/15/2002 Current Sex: Female

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Forecast

Recommendation	Series	Dose	From Date	To Date	Administer
DUE	HepB	3	06/15/2003	07/15/2004	<input type="checkbox"/>
DUE	DTaP	4	03/15/2004	09/13/2004	<input type="checkbox"/>
LATE	MMR	1	12/15/2003	04/21/2004	<input type="checkbox"/>
DUE	Var	1	12/15/2003	07/15/2004	<input type="checkbox"/>
DUE	PCV	4	12/15/2003	04/21/2004	<input type="checkbox"/>
DUE	Influenza	1	06/15/2003	06/15/2013	<input type="checkbox"/>
Add a Non-Scheduled Dose					<input type="checkbox"/>

Select All

Administer

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History Screen



Immunization Registry

User: Kevin Baum

Patient ID:PSN11016000SC01

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Manage Patient



Manage Vaccines

Name: Mary Clark DOB: 12/15/2002 Current Sex: Female

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History

Date Administered	Vaccine Administered	Dose
12/15/2002	HepB	1
01/15/2003	HepB	2
02/15/2003	DTaP	1
04/15/2003	DTaP	2
06/15/2003	DTaP	3
04/15/2003	Hib	1
06/15/2003	Hib	2
02/15/2004	Hib	3
02/15/2003	IPV	1
04/15/2003	IPV	2
06/15/2003	IPV	3
02/15/2003	PCV	1
04/15/2003	PCV	2

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[Immunization Information - A history of this child's immunizations](#)

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South Carolina Certificate of Immunization					Next Immunization Due Between:	Meets Immunization Requirements for:
HepB						
12/15/2002	01/15/2003	Not Given			From 06/15/2003 To 07/15/2004	None
DTaP						
02/15/2003	04/15/2003	06/15/2003	Not Given	Not Given	From 03/15/2004 To 09/13/2004	None
Hib						
04/15/2003	06/15/2003	02/15/2004	Not Given		Series Complete	Both
IPV						
02/15/2003	04/15/2003	06/15/2003	Not Given		From 12/15/2006 To 12/15/2008	DayCare
MMR						
Not Given	Not Given				From 12/15/2003 To 04/23/2004	None
Var						
Not Given	Reliable history of chickenpox <input type="checkbox"/> No				From 12/15/2003 To 07/15/2004	None
PCV						
02/15/2003	04/15/2003	06/15/2003	Not Given		From 12/15/2003 To 04/23/2004	Both
Influenza						
					From 06/15/2003 To 06/15/2013	Both

Please make only necessary changes before viewing the form

[View Form](#)

Add Dose Screen

Vaccination

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Please note: Record ALL doses of EVERY vaccine given. Record all information that is known, even data on vaccine doses administered beyond the recommended guidelines

Vaccine:	<input type="text" value="Hep B, adolescent or pediatric"/>	Date:	<input type="text" value="04/23/2004"/>
Site:	<input type="text"/>	Route:	<input type="text"/>
Manufacturer:	<input type="text" value="Select"/>	Vafac:	<input type="text"/>
Lot #:	<input type="text"/>	Given By:	<input type="text" value="Select"/>
Exp Date:	<input type="text"/>	Organization:	<input type="text" value="Select"/>
Vaccine:	<input type="text" value="DTaP"/>	Date:	<input type="text" value="04/23/2004"/>
Site:	<input type="text"/>	Route:	<input type="text"/>
Manufacturer:	<input type="text" value="Select"/>	Vafac:	<input type="text"/>
Lot #:	<input type="text"/>	Given By:	<input type="text" value="Select"/>
Exp Date:	<input type="text"/>	Organization:	<input type="text" value="Select"/>
Vaccine:	<input type="text" value="MMR"/>	Date:	<input type="text" value="04/23/2004"/>
Site:	<input type="text"/>	Route:	<input type="text"/>
Manufacturer:	<input type="text" value="Select"/>	Vafac:	<input type="text"/>
Lot #:	<input type="text"/>	Given By:	<input type="text" value="Select"/>
Exp Date:	<input type="text"/>	Organization:	<input type="text" value="Select"/>
Vaccine:	<input type="text" value="Varicella"/>	Date:	<input type="text" value="04/23/2004"/>
Site:	<input type="text"/>	Route:	<input type="text"/>
Manufacturer:	<input type="text" value="Select"/>	Vafac:	<input type="text"/>
Lot #:	<input type="text"/>	Given By:	<input type="text" value="Select"/>
Exp Date:	<input type="text"/>	Organization:	<input type="text" value="Select"/>

1148 Form



CERTIFICATE EXPIRES* 03/16/2004

SOUTH CAROLINA CERTIFICATE OF IMMUNIZATION

(To Be Completed By A Licensed Practitioner Of Medicine,
Surgery, Or Osteopathy, Or By His Or Her Authorized Representative)
SC Law 44-29-180

Child's Name: Mary Clark Date of Birth: 12/15/2002 Please make your next appointment for immunization between: 06/15/2003 and 03/15/2004					(1) Next Immunization Due Between	(2) Meets Immunization Requirements for**:
Hepatitis B						
Dose #1	Dose #2	Dose #3			06/15/2003	
HepB 12/15/2002	HepB 01/15/2003				07/15/2004	
DTaP•DT						
Dose #1	Dose #2	Dose #3	Dose #4	Dose #5	03/15/2004	
DTaP 02/15/2003	DTaP 04/15/2003	DTaP 06/15/2003			09/13/2004	
Td						
Dose #1	Dose #2	Dose #3				
Hib						
Dose #1	Dose #2	Dose #3	Dose #4		Complete	Day Care and School
Hib 04/15/2003	Hib 06/15/2003	Hib 02/15/2004				
IPV						
Dose #1	Dose #2	Dose #3	Dose #4		12/15/2006	Day Care
IPV 02/15/2003	IPV 04/15/2003	IPV 06/15/2003			12/15/2008	
MMR						
Dose #1	Dose #2				12/15/2003	
					04/21/2004	
Var						
Dose #1	Dose #2	Check this box <input type="checkbox"/> for a reliable history of, physician diagnosis of, or serologic immunity to chickenpox.			12/15/2003	
					07/15/2004	
PCV						
Dose #1	Dose #2	Dose #3	Dose #4		12/15/2003	Day Care and School
PCV 02/15/2003	PCV 04/15/2003	PCV 06/15/2003			04/21/2004	
Influenza						
Dose #1	Dose #2				06/15/2003	Day Care and School
					06/15/2013	

Medical Exemption due to a vaccine contraindication: This immunization exemption may be permanent or temporary. If **permanent**, check this box and write in the vaccine(s) for which the permanent contraindication(s) exist: _____
 If temporary, assign a "due" date in column (1) for each applicable vaccine.

I certify that the immunization status for the above named child is accurate.	
Type of Print Certifier's Name	Certifier's Signature or Stamp
Certifier's Telephone Number	Date Certificate Issued

*Certificate Expires Date: Child/Student may attend day care or school for no more than one month from this date.
 **Immunization Requirements for Child Day Care Attendance and School Entry are published by DHEC each January.
 DHEC-1148(07/2004)